

CLAIMS:

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A method of cleaning objects in an automatic cleaning appliance, comprising:
introducing a load of objects into a wash zone of said automatic cleaning appliance;
introducing a wash liquor to said load of objects in said wash zone;
applying at least one of electromagnetic, chemical and mechanical energy to said load
5 of objects in said wash zone to remove soil from said load of objects; and
subsequently applying an oxidizing agent to said load of objects, through the medium
of a wash liquor applied to said load of objects.
2. A method according to claim 1, wherein said wash liquor comprises a water
based solution.
3. A method according to claim 2, wherein said wash liquor comprises enzymes
in said solution.
4. A method according to claim 3, wherein said oxidizing agent is applied to said
load of objects after a delay of a predetermined time following the application of said
enzymes to said load of objects sufficient to allow said enzymes to work properly on said
load of objects.
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5. A method according to claim 1, wherein said electromagnetic energy
comprises thermal energy and is applied to said load of objects by means of a heater being
activated for a period of time to heat said wash liquor, and said oxidizing agent is applied to
said load of objects after said heater is deactivated.
6. A method according to claim 1, wherein said objects are fabric and said
cleaning appliance comprises an automatic washer.

7. A method according to claim 1, wherein said objects are foodware and said cleaning appliance comprises an automatic dishwasher.

8. A method according to claim 1, wherein said wash zone is arranged to rotate about a vertical axis.

9. A method according to claim 8, wherein said oxidizing agent is introduced to said wash zone in a lower region of said wash zone.

10. A method according to claim 1, wherein said wash zone is arranged to rotate about a horizontal axis.

11. A method according to claim 1, wherein said automatic cleaning appliance includes a sump where said wash liquor from said wash zone collects, said method further comprising the step of pumping said wash liquor from said sump into said wash zone, wherein said step of applying said oxidizing agent further comprises introducing said
5 oxidizing agent into said sump.

12. A method according to claim 1, further comprising an initial wash cycle during which said at least one of said electromagnetic, chemical and mechanical energy is applied to said load of objects, and said oxidizing agent is applied to said load of objects no sooner than approximately 5 minutes into said initial wash cycle.

13. A method according to claim 1, wherein a first water based rinse cycle occurs after said application of at least one of electromagnetic, chemical and mechanical energy, and wherein said step of applying said oxidizing agent comprises applying said oxidizing agent to said load of objects during said first rinse cycle.

14. A method according to claim 1, wherein a first water based rinse cycle occurs after said application of at least one of electromagnetic, chemical and mechanical energy, and wherein said step of applying said oxidizing agent comprises applying said oxidizing agent to said load of objects at the beginning of said first rinse cycle.

15. A method according to claim 1, wherein said oxidizing agent comprises hydrogen peroxide.

16. A method according to claim 15, wherein said hydrogen peroxide is provided in said fluid medium at a concentration in the range of 10 to 10000 parts per million.

17. A method according to claim 15, wherein said hydrogen peroxide is generated in association with said automatic cleaning appliance.

18. A method according to claim 15, wherein said hydrogen peroxide is activated in association with said automatic cleaning appliance through contact with chemically-modified surfaces to form hydroxyl radicals.

19. A method according to claim 15, wherein said automatic cleaning appliance is provided with a water supply line for providing water to be used in said wash liquor and said hydrogen peroxide is generated in said automatic cleaning appliance through electrolysis of water introduced through said water supply line.

20. A method according to claim 1, wherein said oxidizing agent is generated in association with said automatic cleaning appliance.

21. A method according to claim 1, wherein said oxidizing agent is generated in said automatic cleaning appliance.

22. A method according to claim 20, wherein said automatic cleaning appliance is provided with a water supply line, providing water to be used in said wash liquor and said oxidizing agent is generated in said automatic cleaning appliance through electrolysis of water introduced through said water supply line.

23. A method of cleaning objects in an automatic cleaning appliance, comprising: introducing a load of objects into a wash zone of said automatic cleaning appliance;

applying a wash liquor and at least one of electromagnetic, chemical and mechanical energy to said load of objects in said wash zone to remove soil from said load of objects;

5 generating an oxidizing agent via a chemical generating device arranged in association with said automatic cleaning appliance; and

subsequently applying said oxidizing agent to said load of objects, through the medium of a fluid applied to said load of objects.

24. A method of cleaning objects according to claim 23, wherein said chemical generating device is located within a cabinet of said automatic cleaning appliance.

25. A method of cleaning objects according to claim 23, wherein heat is generated in the process of generating said oxidizing agent, and said heat is applied to load of objects in said wash zone as at least a part of said electromagnetic energy.

26. A method of cleaning objects in an automatic cleaning appliance, comprising: introducing a load of objects into a wash zone of said automatic cleaning appliance; electrochemically decomposing a chemical composition into resultants via an electrochemical cell device arranged in association with said automatic cleaning appliance;

5 reacting at least one of said resultants to form an oxidizing agent, applying a wash liquor and at least one of electromagnetic, chemical and mechanical energy to said load of objects in said wash zone to remove soil from said load of objects; subsequently applying said oxidizing agent to said load of objects, through the medium of a fluid applied to said load of objects.

27. A method of cleaning objects according to claim 26, wherein said electrochemical cell device is located within a cabinet of said automatic cleaning appliance.

28. A cleaning appliance for cleaning a load of objects comprising: a wash chamber defining a wash zone for accepting said load of objects; a dispenser for applying wash liquor to said wash chamber; a sump for collecting wash liquor that has been applied to said wash chamber; and

5 a chemical generating device for generating an oxidizing agent for dispensing into said wash liquor.

29. A cleaning apparatus according to claim 28 wherein said objects are fabric and said cleaning apparatus is an automatic washer.

30. A cleaning apparatus according to claim 29 wherein further comprising agitation means for moving said fabric within said wash chamber.

31. A cleaning apparatus according to claim 28 wherein said objects are foodware and said automatic cleaning apparatus is an automatic dishwasher.

32. A cleaning apparatus of claim 28 further comprising means for applying at least one of electromagnetic, chemical and mechanical energy to said load of objects in said wash zone to remove soil from said load of objects

33. A cleaning apparatus according to claim 32, wherein said means for applying energy comprises a heater adapted to heat said wash liquor, said oxidizing agent being applied to said load of objects after said heater is deactivated.

34. A cleaning apparatus according to claim 28, wherein said oxidizing agent is introduced to said wash chamber in a lower region of said wash zone.

35. A cleaning apparatus according to claim 28, wherein said chemical generating device creates said oxidizing agent from wash liquor in said sump.

36. A cleaning apparatus according to claim 28, wherein said oxidizing agent comprises hydrogen peroxide.

37. A cleaning apparatus according to claim 36, wherein said hydrogen peroxide is introduced in said wash liquor at a concentration in the range of 10 to 10000 parts per million.

38. A cleaning apparatus according to claim 36, wherein said hydrogen peroxide is activated in said chemical generating device through contact with chemically modified surfaces to form hydroxyl radicals.

39. A cleaning apparatus according to claim 36, further comprising a water supply line for providing water to be used in said wash liquor, and further wherein said chemical generating device generates said hydrogen peroxide through electrolysis of water introduced through said water supply line.

40. A cleaning apparatus according to claim 28, further comprising a water supply line for providing water to be used in said wash liquor, and further wherein said chemical generating device generates said hydrogen peroxide through electrolysis of water introduced through said water supply line.

41. An automatic cleaning appliance comprising:

a wash zone arranged to receive a load of objects to be cleaned and a wash liquor to be applied to the load of objects in said wash zone;

a water supply line communicating with said wash zone;

5 a hydrogen peroxide generator arranged to receive a supply of water from said water supply line;

a conduit leading from said hydrogen peroxide generator to said wash zone.

42. An automatic cleaning appliance comprising:

a wash zone arranged to receive a load of objects to be cleaned and a wash liquor to be applied to the load of objects in said wash zone;

5 a chemical generating device arranged in association with said appliance to generate an oxidizing agent; and

a conduit leading from said chemical generating device to said wash zone.